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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,233	03/31/2004	Shunpei Yamazaki	740756-2719	3870

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EXAMINER	
DANG, TRUNG Q	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/813,233	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Trung Dang	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 31 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/387,053.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/31/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. (US 6,246,070 cited by applicants)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With reference to Figs. 10A-1C in conjunction with the embodiment depicted in Figs. 1A-1E, the reference anticipates in that it discloses a method for manufacturing a semiconductor device comprising the steps of:

sequentially forming a gate insulating film 103 and an initial semiconductor film 104 on an insulating surface 101 having gate lines 102 formed thereon such that they are stacked without being exposed to the atmosphere (col. 7, lines 8-15);

crystallizing said initial semiconductor film by irradiating it with infrared light or ultraviolet light to form a crystalline semiconductor film and an oxide film 105 simultaneously (col. 4, lines 61-64; col. 19, lines 5-7 and claim 18); and

covering a region to become a channel formation region of said crystalline semiconductor film with a mask 109a and doping a region to become a source region 110 or drain region 110 of said crystalline semiconductor film with a trivalent or pentavalent impurity element through said oxide film (col. 4, lines 61-67 and claim 18).

For claim 2, see Embodiment 2 in col. 13, lines 21-23 in which a catalytic element for promoting crystallization of silicon is used.

For claim 3, see col.5, lines 31-34 and claim 23 of the reference. Note that a hydrogen compound is a hydride.

For claim 4, see col. 5, lines 35-37 and claim 24 of the reference.

For claim 5, see col. 5, lines 38-41 and claim 25 of the reference.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 3-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 18, 23-25 of U.S. Patent No. 6,246,070 cited above. Although the conflicting claims are not identical, they are not patentably distinct from each other because mere difference in wording between claims 18, 23-25 of the US' 070 and claims 1, 3-5 of the pending application would not render the scope of claims 18, 23-25 patentably distinct from the scope of pending claims 1, 3-5.

6. Claim 2 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 18 of U.S. Patent No. 6,246,070 cited above in view of Teramoto et al. (US. Pat. 5,923,966).

Claim 18 of the US' 070 teaches a method for manufacturing a semiconductor device comprising the steps of:

> forming a gate wiring on an insulating surface;
> forming a gate insulating film and an initial semiconductor film into a laminate sequentially without exposing them to an atmosphere on the gate wiring;
> irradiating the initial semiconductor film with an infrared light or an ultraviolet light to crystallize the initial semiconductor film into a crystalline semiconductor film and to form an oxide film at a same time;
> covering a first portion of the crystalline semiconductor film with a mask;
> providing a trivalent or pentavalent impurity element into second portions of the crystalline semiconductor film through the oxide film,
> wherein the first portion of the crystalline semiconductor film is a channel

forming region while the second portions of the crystalline semiconductor film are source and drain regions.

Claim 18 of the US' 070 differs from pending claim 2 in not disclosing the step of retaining a catalytic element for promoting the crystallization of silicon in contact with the surface of said initial semiconductor film or within said film after said step of forming the gate insulating film and the initial semiconductor film.

Teramoto in Embodiment 4 teaches a process in which a single crystal film is produced by irradiating a laser light to an amorphous silicon film containing a metal element which promotes the crystallization of the amorphous silicon (Embodiment 4 in col. 15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of claim 18 by incorporate the metal element (corresponding to the claimed catalytic element) for promoting the crystallization of the silicon as suggested by Teramoto because the presence of the metal element in the silicon film would easily generate crystal nucleus in a short time thus crystallization would proceeding faster, resulting in a single crystal film with no crystal grain exists in the film. The single crystal film when used as an active layer for a transistor would enhance the operation of the device due to the absence of crystal grain in the active layer.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 6 recites the limitation " said oxide film" at the last line of the claim. Furthermore, each of dependent claims 7-8 recites the limitation "said protective film". The aforementioned limitations lack antecedent basis, rendering the claims indefinite. Because each of claims 6-8 fails to set forth the metes and bounds of the claims, the scope of the invention as claimed cannot be ascertained therefore a rejection over prior art cannot be made at this time.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Dang whose telephone number is 571-272-1857. The examiner can normally be reached on Mon-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Trung Dang
Primary Examiner
Art Unit 2823

01/07/05